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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,198	12/30/2003	Kyung Hee Koh	PIA31224/DBE/US	2538
36872	7590	05/20/2005		
THE LAW OFFICES OF ANDREW D. FORTNEY, PH.D., P.C. 7257 N. MAPLE AVENUE BLDG. D, 3107 FRESNO, CA 93720				
			EXAMINER WILSON, CHRISTIAN D	
			ART UNIT 2891	PAPER NUMBER

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/751,198

Applicant(s)

KOH, KYUNG HEE

Examiner

Christian Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: search history.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 3, 7, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Moon *et al.*

Moon *et al.* (US 2002/0164838) discloses a method for packaging a multi-chip module comprising the steps of connecting a first chip **110b** with wafer bumps **116b** to lower parts of inner leads of TAB tapes **230** with an inner lead **242** and an outer lead **235** with electrical signals communicated between them, connecting a second chip **110a** with wafer bumps **116b** to an upper part of the TAB tapes connected to the first chip [Figure 3a], and encapsulating with an underfill material **146** between the TAB tapes and the chips [Figure 3b].

Regarding claim 2, Moon *et al.* further discloses connecting a third chip [Figure 4b] with wafer bumps **172** to an upper part of the second chip, connecting the outer leads **135** of the TAB tape to the wafer bumps of the third chip, connecting an inner lead **242** of the TAB taps to the other wafer bump of the third chip, connecting a fourth chip [Figure 4b] with wafer bumps to the TAB tapes, and encapsulating with an underfill material **146** between the taps and the third and fourth chips.

Regarding claims 3 and 7, Moon *et al.* further discloses connecting the outer leads of the TAB tape to a patterned circuit **182**.

Regarding claim 11, Moon *et al.* further discloses accumulating a plurality of chips [Figure 4b].

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moon *et al.* in view of Isaacson.

Moon *et al.* teaches the limitations of claims 1 and 2 as described above, but does not discuss mounting a radiator to the upper part of the second chip with a conductive adhesive. Isaacson (US 3,766,439) teaches mounting a heat radiator **18** to a second chip with a conductive adhesive [column 5, lines 15-30]. It would have been obvious to one of ordinary skill in the art to use the mounting method of Isaacson in the method of Moon *et al.* since this method provides an improvement in the dissipation of heat from the devices.

5. Claims 5, 6, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moon *et al.* in view of Morrison *et al.*

Moon *et al.* teaches the limitations of claims 1 and 2 as described above including TAB tapes are bonded the wafer bumps on the chips [Figure 1a], but does not discuss the bonding method. Morrison *et al.* (US 2002/0114143) teaches a gang bonding method of mounting chips to a TAB tape [0063]. It would have been obvious to one of ordinary skill in the art to use the

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bonding method of Morrison *et al.* in the method of Moon *et al.* since gang bonding provides a fast and low-cost operation while resulting in high quality, reliable attachments.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited prior art teaches methods of packaging a multi-chip module using flexible tapes.

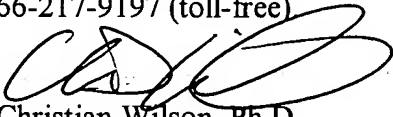
7. A copy of the EAST search history is enclosed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian Wilson whose telephone number is (571) 272-1886.

The examiner can normally be reached on weekdays, 7:30 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

  
Christian Wilson, Ph.D.  
Primary Examiner  
Art Unit 2891

CDW